

SONY®

NTSC

BETACAM SX™

Digital Portable Editor

DNW-A25/A225/A220



Portable Editing System for News Applications



Sony has been developing the Betacam SX™ system line up as an optimized digital ENG format that realizes the full benefit of digital technology. New products and features are being added to the Betacam SX series, including portable editing solutions. Since its introduction, the DNW-A220 Digital Portable Editor has re-defined field editing by delivering a cost-efficient, fully featured compact package.

In addition to the DNW-A220, Sony has developed the new line up of portable editing equipment, Digital Portable Editing Recorder DNW-A25 and Digital Portable Editor DNW-A225. The DNW-A25 is a portable deck that offers frame-accurate editing functions added with the Betacam™ and Betacam SP™ playback capability. The DNW-A225 is the connected pair of DNW-A25 decks, providing a complete editing package that can be detached for individual recording/playback requirements.

The Digital Portable Editors bring new productivity and flexibility to news crews in the field, and are the key components in the new digital era.



Main Feature

Compact, Light-weight Design

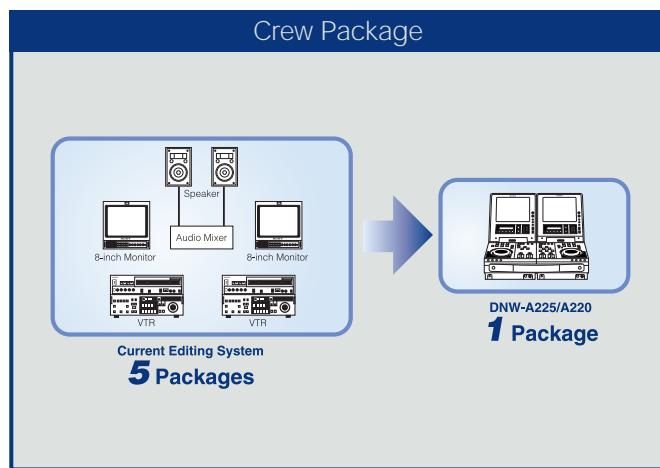
The DNW-A225 and DNW-A220 incorporate two VTRs, two LCD screens and built-in audio monitoring, weigh around 13 kg (under 30 lb) with overall dimensions of 422 x 443 x 149 mm (16.6 x 17.5 x 5.9 inches). The DNW-A25 is half in weight and width. They are small enough to be hand-carried and versatile enough to be used internationally.



DNW-A225

Minimum Crew Package

The Digital Portable Editors are small and lightweight, achieving a significant reductions in the field editing equipment required by news crews. With bright LCD screens in a compact, modular package, they make it ideal for portable editing applications. During editing, pictures can be monitored on the LCD screen on each deck of DNW-A225, DNW-A220, and DNW-A25, and audio can be monitored via headphones or built-in speakers. The DNW-A225 and DNW-A220 functionally replace two VTRs, two video monitors, and audio mixing equipment.



Superb Picture Quality of MPEG2 4:2:2P@ML

The Digital Portable Editors deliver the superb digital picture quality of the Betacam SX format, recording 8-bit, 4:2:2 component digital signals using the advanced MPEG2 compression algorithm.

Frame Accurate Assemble/Insert Editing

The Digital Portable Editors perform frame accurate Assemble and Insert Editing for both Video and Audio. The Time Code insert editing is also available.

Audio 4 channel Recording

The Digital Portable Editors have the capability to mix or swap any 2 channels of audio from the available 4 channel digital audio channels or 2 analog audio channels. The line output and monitor output have 2 output channels (L and R). Each of the 2 channels can output mixed audio from any of the 4 channels.



Detachable Operation

The DNW-A225 and DNW-A220 can easily be separated into two portable VTRs; each one can operate as an independent stand-alone portable VTR. This feature expands the flexibility and mobility of these Betacam SX format system.

Battery Operation

The Digital Portable Editors operate on battery power by attaching Sony BP-L60A/L90A lithium-ion batteries via the V-shoe attachment. Lithium-ion batteries provide high capacity in a small and compact size, and offer approximately 90 minutes operation time in a fully charged condition. AC powered operation is also available by connecting an AC-DN2A AC adaptor, which can power to both decks, through the V-shoe attachments and 4-pin connector.



DNW-A220 Control Panel

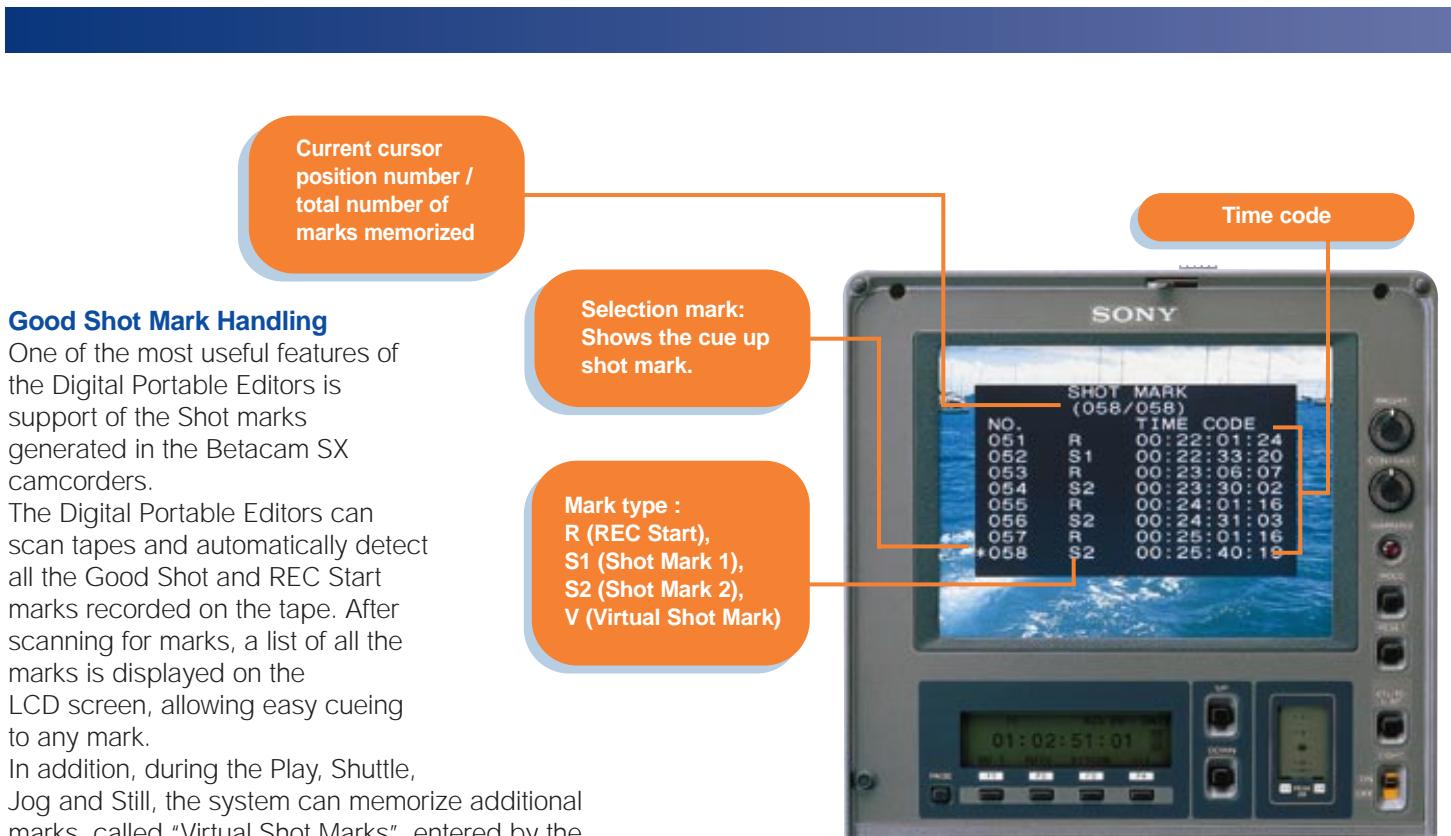


Long Recording Time

The Digital Portable Editors use S-size cassettes for recording and playback. In Betacam SX recording, a single S-cassette records up to 62 minutes of audio/video signals. In addition, each of the DNW-A225 and DNW-A220 provide a sequential recording function using both left and right side decks. This feature provides endless recording by synchronizing the recording process across both decks.



DNW-A225 Control Panel



Good Shot Mark Handling

One of the most useful features of the Digital Portable Editors is support of the Shot marks generated in the Betacam SX camcorders.

The Digital Portable Editors can scan tapes and automatically detect all the Good Shot and REC Start marks recorded on the tape. After scanning for marks, a list of all the marks is displayed on the LCD screen, allowing easy cueing to any mark.

In addition, during the Play, Shuttle, Jog and Still, the system can memorize additional marks, called "Virtual Shot Marks", entered by the operators. This feature speeds up the edit search process dramatically.

Shot Mark Operation menu is used to specify whether REC Start marks are recorded. You can write additional shot marks at any position on the tape and delete individual marks that are no longer needed.

Reading Shot Data

Shot data is recorded continuously on the tape during shooting. To display shot data, press PLAY button together with the ENTRY/SHIFT button. The tape is played back, and the display shown below appears. The contents of the display change as the shooting condition change (for example, the date and time or shooting device change).



Speedy and Simple Operation

The Digital Portable Editors adopts the layout of control buttons similar to that of Betacam/SP VTRs, for simple, and familiar operation. They include specially designed Sony Jog/Shuttle dials, and the familiar audio slide faders on the control panel to give the operator speedy and precise control with a "hands-on" feel.

High-speed Picture Search

Digital picture search is available in shuttle mode at up to 24 times normal play speed in both forward and reverse directions. Betacam SP can be searched at up to 10 times in either direction.

Noiseless Slow Playback

Variable Playback is available over the range of -1 to +1 times normal play speed. These systems also include Dynamic Motion Control (DMC) Editing with Betacam SX media.

Analog Playback Capability

The DNW-A25, DNW-A225 and the left side deck of the DNW-A220 can play back analog Betacam and Betacam SP recordings made on oxide or metal particle tape. This analog playback capability allows existing Betacam SP camcorders to be used for news acquisition, and to playback the large volume of analog Betacam and Betacam SP tapes that most of the broadcasting stations already own.

The Sony Digital Portable Editor line-up include the DNW-A25, DNW-A225, and DNW-A220.

DNW-A220

DNW-A220 is a cost effective portable editor and the first Betacam SX Digital Portable Editor to offer editing in a small and compact package. The DNW-A220 offers Betacam SX record/playback and Betacam SP playback (left side) and video/audio insert and assemble editing (right side). Support of the Good Shot Mark system is included.



DNW-A25

The DNW-A25 Digital Portable Editing Recorder is a half in weigh and width of DNW-A225 and DNW-A220, making it small enough to be hand-carried. It features frame-accurate insert editing functions, as well as Betacam and Betacam SP tape playback. The DNW-A25 can also be used as a feeder, or as a third VTR for A/B roll with DNW-A220 or DNW-A225.



DNW-A225

The DNW-A225 consists of two detachable DNW-A25 units, connected into a single editing package. Both side of the DNW-A225 are capable of frame-accurate editing, as well as support of Betacam and Betacam SP tape playback.

NOTICE:

Liquid Crystal Display Panel

The liquid crystal display fitted to this unit is manufactured with high precision technology, giving a functioning pixel ratio of at least 99.99%. Thus a very small proportion of pixels (at most 0.01%) may be "stuck", constantly on or constantly off. In addition, over a long period of use, because of the physical characteristics of the liquid crystal display, such "stuck" pixels may appear spontaneously. These problems have been kept to the absolute minimum, but are an unavoidable characteristic of liquid crystal technology.

Connection with the DV/DVCAM™ Format

Sony makes it possible to incorporate material acquired in both the DV and DVCAM formats into the Digital Portable Editors. Since many of the Sony DVCAM VTR can add the SDI Input/Output as an option, it is easy to connect the DVCAM with the Digital Portable Editors via SDI. Connection with the Consumer DV equipments is also available by using the newly designed DV Interface box, BKNW-25.



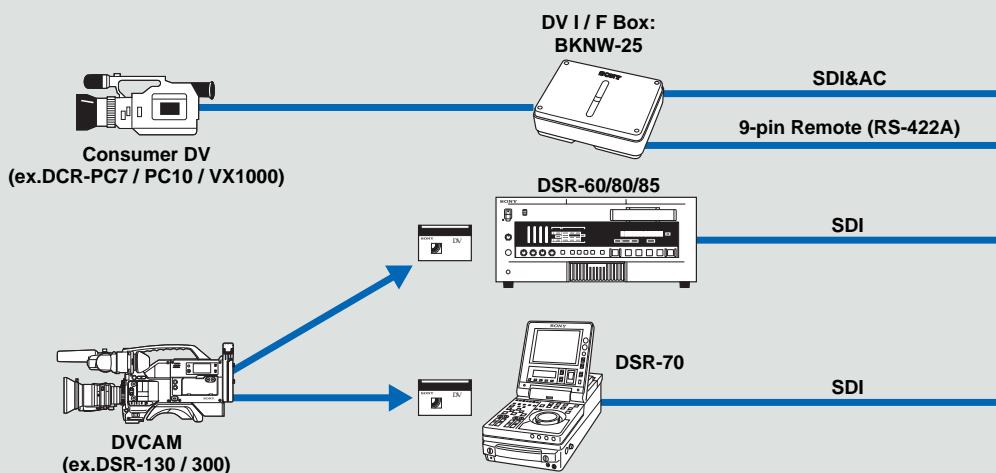
BKNW-25 Rear

BKNW-25 attached on
DNW-A225/A220



DSR-70

Connection with DV/ DVCAM format



525/60 or 625/50 Versatility

The Digital Portable Editors can easily be switched from 525/60 to 625/50 modes when used in a component digital signal environment. In addition, Analog Betacam/SP monitoring is available for both 525/60 and 625/50 mode. This flexibility enables the Digital Portable Editors to work in international environments.

Remote Control Interface

Using the Sony 9-pin RS-422A interfaces, each deck of the Digital Portable Editors can be remotely controlled from the optional BVR-3 Remote Controller*, or other controller.

*Pause mode is not available.



DNW-A225 / A220 Rear



AC-DN2A on DNW-A225 / A220



AC-DN2A

AC-DN2A

The AC-DN2A is the AC Adaptor ideally suited for the Digital Portable Editors. The unit delivers up to maximum 150 W of power. It can be used not only for the Digital Portable Editors but also for the other portable equipment such as Betacam SX Camcorders. Since it is also equipped with XLR 4-pin port, the AC-DN2A can be used to power a variety of other portable equipment. Furthermore, AC-DN2A can be used as a battery charger for Lithium-ion batteries while powering the DNW-A25, using the V-shoe battery attachment included.

Supplied accessories

Operation Manual
Maintenance Manual
DC Cable (XLR 4-pin)



Rechargeable Lithium-ion Battery
BP-L60A/L90A



Battery Case for an optional BP-90A NiCd Battery
DC-L90



AC Adaptor
AC-550



Docking Kit
BKNW-225



Remote Controller
BVR-3



DV Interface Box
BKNW-25



Carrying Case (Hard)
LC-DN220



Carrying Case (Soft)
LC-DN220SFT



Cleaning Cassette
BCT-5CLN



Cleaning Cassette
BCT-D12CL



Betacam SX Video Cassette
BCT-12SX/22SX/32SX/60SX/62SXA

Specifications

	DNW-A225 <VTR1/VTR2>	DNW-A220 <VTR1/VTR2>	DNW-A25
General			
Power requirements	DC 12 V		
Power consumption	130 W (65 W x 2)	120 W (60 W x 2)	65 W
Operating temperature	0 °C to +40 °C (+32 °F to +104 °F)		
Storage temperature	-20 °C to +60 °C (-4 °F to +140 °F)		
Humidity	25 % to 80 % (relative humidity)		
Mass	13 kg (6.5 kg x 2, 28 lb 10 oz)		6.5 kg (14 lb 5 oz)
Tape speed	Betacam SX: 59.515 mm/s (525 mode), 59.575 mm/s (625 mode) Betacam/Betacam SP: 118.6 mm/s		
Digital playback/recording	Max. 62 minutes with BCT-62SX cassette		
Fast forward/rewind time	Less than 3 min with BCT-62SX cassette		
Search speed range	Betacam SX: ±24 times normal playback speed, Betacam/Betacam SP: ±10 times normal playback speed		
Servo lock time	0.5 s or less (from standby on)		
Load/unload time	6 s or less		
Input/output signals			
Analog composite input	BNC (x1), 1.0 Vp-p, 75 Ω, sync negative		
Analog composite output	BNC (x2, including one character out), 1.0 Vp-p, 75 Ω, sync negative		
SDI input	BNC (x1), SMPTE 259M, 270 Mbit/s		
SDI output	BNC (x2), SMPTE 259M, 270 Mbit/s		
Analog audio input (CH1,2)	XLR (x2)		
Analog audio output (CH1,2)	XLR (x2)		
Analog monitor output (L,R)	XLR (x2)		
Headphones output	Standard jack (x1), stereo		
Remote control	D-sub 9-pin (x1), Sony 9-pin remote interface		
Reference input	BNC (x1), 0.3 Vp-p, 75 Ω, sync negative (with loop through out)		
Test	Aux 6-pin (x1) (for maintenance)		
Time code input	BNC (x1)		
Time code output	BNC (x1)		
Processor adjustment range			
Video level	±3 dB/-∞ to 3 dB selectable		
Chroma level	±3 dB/-∞ to 3 dB selectable		
Set up/Black level	±30 IRE/±210 mV		
Y/C delay	±100 ns (in Betacam/Betacam SP playback)		±30 °
Chroma Phase			
System phase	Sync: ±15 µs (SC step), SC: ±200 ns Y: 13.5 MHz, R/Y/B-Y: 6.75 MHz		
Digital video signal system			
Sampling frequency	8 bits/sample		
Quantization	MPEG2 4:2:2 Profile@Main Level		
Compression			
Analog composite recording playback			
Bandwidth (Y)	0 to 4.5 MHz+0.5 dB/-3.0 dB (525 mode), 0 to 5.5 MHz+0.5 dB / -3.0 dB (625 mode)		
S/N	53 dB or more		
Differential gain	2 % or less		
Differential phase	2 ° or less		
Y/C delay	15 ns or less		
K factor (2T pulse)	1.5 % or less		
Output S/C/H phase	Based upon RS-170A/ITU-R BT.624-3		
Digital audio signal system			
Sampling frequency	48 kHz (synchronized with video)		
Quantization	16 bits/sample		
Headroom	20 dB (or 18 dB selectable)		
Emphasis	T1=50 µs, T2=15 µs (on/off selectable in recording mode)		
Analog output			
A/D, D/A quantization	16 bits/sample		
Frequency response	20 Hz to 20 kHz +0.5 dB/-1.0 dB (0 dB at 1 kHz)		
Dynamic range	88 dB or more (at 1 kHz, emphasis on, 30 kHz LPF ON)		
Distortion	0.05 % or less (at 1 kHz, emphasis on, reference level (+4 dBm), 30 kHz LPF ON)		
Crosstalk	80 dB or less (at 1 kHz, between any two channels, 1 kHz BPF ON)		
Others			
Channel coding	S-1-NRZI PR-IV		
Error correction	Reed-Solomon code		
LCD Monitor			
Display method	Active matrix transmission		
Size	6.4 inches x 2		6.4 inches x 1
Picture elements	640 x 480 x 3 pixels		
Luminance / brightness	Adjustable by knob		
Speaker	Built-in speakers	x 2, monaural	x 1, monaural
Display	Counter, Servo Lock, Tape Remain, Battery Remain, etc.		
Audio level meter	Ch 1, Ch 2 (indication of Ch 3,4 is also available by switch)		
Supplied accessories			
	9-pin remote control cable x 1	Carrying belt x 1	
	75 Ω coaxial cable with BNC plug x 1 (for SDI connection)	Operation manual x 1	
	Shoulder belt x 1	Maintenance manual (part 1) x 1	
	Operation manual x 1		
	Coin screws x 12		
	Maintenance manual (part 1) x 1		
Dimensions			
	DNW-A225	DNW-A25	DNW-A220

unit: mm (inches)

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